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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,838	03/18/2004	Shuichi Kawama	1248-0704P	4256
2292	7590	09/21/2007	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH			PERILLA, JASON M	
PO BOX 747			ART UNIT	PAPER NUMBER
FALLS CHURCH, VA 22040-0747			2611	
NOTIFICATION DATE		DELIVERY MODE		
09/21/2007		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

[mailroom@bskb.com](mailto:mailroom@bskb.com)

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/802,838	KAWAMA ET AL.
	Examiner	Art Unit
	Jason M. Perilla	2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 18 March 2004.
- 2a) This action is **FINAL**.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 2-5,7,8,10 and 11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 2-5,7,8,10 and 11 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 18 March 2004 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_

### DETAILED ACTION

1. Claims 2-5, 7, 8, 10 and 11 are pending in the instant application.

#### *Response to Amendment/Argument*

2. The Applicant's amendments and arguments filed August 30, 2007 have been considered by the Examiner.

In view of the Applicant's amendment and argument against the rejection of claims 3 and 5-11 under 36 U.S.C. 112, second paragraph, the rejections are withdrawn.

Regarding the Applicant's arguments against the prior art rejections, they are not persuasive. The Applicant argues that, supposedly in contrast to the prior art combination, "the switched capacitor filter of the subject application is, as shown in Figs. 1 and 2, arranged such that the transistor on the input (first) stage of the amplifier is a bipolar transistor, whereas the other transistors are FET transistors." (pg. 8.) However, the prior art combination does not necessarily suggest replacing all operational amplifiers of Azuma with bipolar amplifiers. Furthermore, although the Applicant notes that figure 1 illustrates a first stage bipolar amplifier (fig. 1, ref. 104) and remaining stages of FET amplifiers (fig. 1, refs. 102 and 103) to distinguish from the prior art of record, none of the claims contain such express limitations. Therefore, notwithstanding any manner of replacing FET amplifiers of Azuma with bipolar amplifiers of Bonaccio, the claim limitations are met by their prior art combination.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3 and 6-11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Azuma et al ("Embedded Anti-Aliasing in Switched-Capacitor Ladder Filters With Variable Gain and Offset Compensation", IEEE Journal of Solid-State Circuits, Vol. 37, No. 3 March 2002, Pages 349-356; 3/18/04 IDS Paper Reference – hereafter "Azuma") in view of Bonaccio et al (U.S. Pat. No. 6034568; hereafter "Bonaccio").

Regarding claim 2, Azuma discloses, according to figure 1 on page 350, a switched capacitor filter having an anti-aliasing function, comprising: integration circuits of multiple stages, each having an amplifier and a switched capacitor, and wherein an integration circuit of at least a first stage of the integration circuits of multiple stages has a resistor. Azuma does not explicitly disclose that at least one of the integration circuits includes a bipolar transistor. However, it is notoriously known in the art that the operational amplifiers of Azuma (fig. 1, refs. 1-3) may be constructed of, for instance, bipolar transistors or field effect transistors (FET). Furthermore, Bonaccio teaches that "FET-input operational amplifiers suffer from larger initial offsets and much larger drifts of offset voltage with temperature deviations than do bipolar transistor operational amplifiers." (col. 5, lines 35-40). Therefore, it would have been obvious to one having

ordinary skill in the art at the time which the invention was made to use bipolar transistor amplifiers as taught by Bonaccio as operational amplifiers of Azuma because they provide lower initial offsets and temperature drifts. Finally, one skilled in the art, in accordance with Bonaccio's teaching, would choose operational amplifiers comprised completely of bipolar transistors as they are well known in the art.

Regarding claim 3, Azuma in view of Bonaccio disclose the limitations of the claim as applied to claim 2 above. Further and more specifically, the strong 1/f noise reduction technique is achieved in the combination of Azuma in view of Bonaccio at least as well as it is achieved in the embodiment of the instant application because it is achieved in the same manner. Namely, by using a bipolar transistor input operational amplifier.

Regarding claim 6, Azuma in view of Bonaccio disclose the limitations of the claim as applied to claim 1 above. Further, Azuma discloses that the switched capacitor filter is provided on a single substrate (pg. 354, "TEST RESULTS"; fig. 14).

Regarding claim 7, Azuma in view of Bonaccio disclose the limitations of the claim as applied to claim 2 above. Further, Azuma discloses that the switched capacitor filter is provided on a single substrate (pg. 354, "TEST RESULTS"; fig. 14).

Regarding claim 8, Azuma in view of Bonaccio disclose the limitations of the claim as applied to claim 3 above. Further, Azuma discloses that the switched capacitor filter is provided on a single substrate (pg. 354, "TEST RESULTS"; fig. 14).

Regarding claim 9, Azuma in view of Bonaccio disclose the limitations of the claim as applied to claim 1 above. Further, Azuma discloses that the filter is used in an

intermediate frequency band section of a digital wireless receiver (pg. 349, "INTRODUCTION").

Regarding claim 10, Azuma in view of Bonaccio disclose the limitations of the claim as applied to claim 2 above. Further, Azuma discloses that the filter is used in an intermediate frequency band section of a digital wireless receiver (pg. 349, "INTRODUCTION").

Regarding claim 11, Azuma in view of Bonaccio disclose the limitations of the claim as applied to claim 3 above. Further, Azuma discloses that the filter is used in an intermediate frequency band section of a digital wireless receiver (pg. 349, "INTRODUCTION").

5. Claims 4 and 5 rejected under 35 U.S.C. § 103(a) as being unpatentable over Azuma in view of Bonaccio, and in further view of Min et al (U.S. Pat. No. 6515489; hereafter "Min").

Regarding claim 4, Azuma in view of Bonaccio disclose the limitations of claim 2 as applied above. Further, Azuma discloses that the input stage amplifier (fig. 1, ref. 1) has an input resistor (fig. 1, ref.  $R_{a0}$ ). Azuma in view of Bonaccio do not explicitly disclose that the amplifier whose input stage includes the bipolar transistor has an input impedance that is greater than a resistance of a resistor which is connected to the input stage of the amplifier. However, one skilled in the art is notoriously aware that, ideally, an operational amplifier would have an infinite input impedance and Min suggests such common characteristic of an amplifier (col. 4, lines 25-35). Therefore, although the input operational amplifier of Azuma in view of Bonaccio is not explicitly disclosed as

having a higher input impedance than that of their input resistor, it is inherent, implied, or at least obvious to one having ordinary skill at the time the invention was made that the input impedance of the operational amplifier would be higher than that of its input resistor.

Regarding claim 5, Azuma in view of Bonaccio disclose the limitations of claim 3 as applied above. Further, Azuma in view of Bonaccio, and in further view of Min disclose the remaining limitations of the claim as applied to claim 4 above.

***Allowable Subject Matter***

6. No claims are allowed.

***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Perilla whose telephone number is (571) 272-3055. The examiner can normally be reached on M-F 8-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jason M. Perilla  
September 12, 2007

jmp



CHIEH M. FAN  
SUPERVISORY PATENT EXAMINER